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Opacity Provisions
Background Information for
Promulgated Amendments

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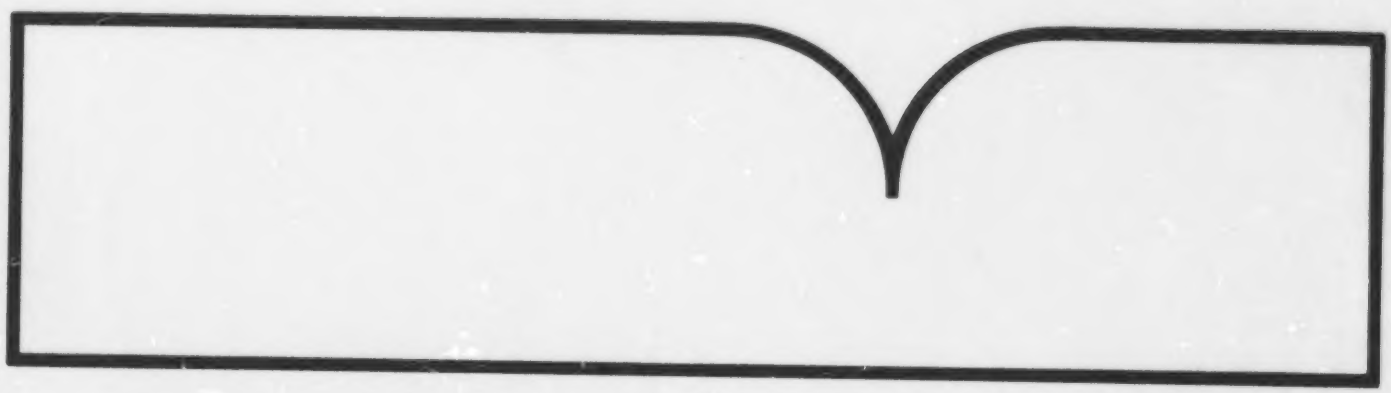

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Opacity Provisions — Background Information For Promulgated Amendments

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16. ABSTRACT

The promulgated opacity provisions require owners or operators of affected facilities that are subject to opacity standards in 40 CFR Part 60 to record and report the opacity of emissions during the initial performance test. These provisions implement Section 114 of the Clean Air Act.

17. KEY WORDS AND DOCUMENT ANALYSIS

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Opacity Provisions — Background Information For Promulgated Amendments

Emission Standards and Engineering Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

December 1985

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Table of Contents

Section		Page
1.0	Summary	1-1
1.1	Summary of Changes Since Proposal	1-1
2.0	Summary of Public Comments	2-1
Table 2-1.	List of Commenters on the Proposed Opacity Provisions	2-36
Table 2-2	Cost of Visible Observations Using Method 9	2-39

1.0 SUMMARY

On July 31, 1984, the U.S. Environmental Protection Agency (EPA) proposed a requirement for owners and operators of affected facilities subject to opacity standards in 40 CFR Part 60 to conduct opacity observations, and record and report the opacity of emissions during each performance test. This requirement was proposed under the authority of Section 114 of the Clean Air Act, as amended, and was based on the Administrator's determination that the recordkeeping and reporting was necessary to demonstrate compliance with the respective opacity standards. The data would also be used during 4-year reviews of standards of performance for new stationary sources so that EPA could decide whether revisions to the respective opacity standards were necessary. The proposed opacity provisions were published in the Federal Register (49 FR 30676) with a request for public comments. The opportunity for a public hearing was provided but a hearing was not held because it was not requested. A total of 19 comment letters were received from industry, state and local air pollution control agencies, and a law firm representing members of the Utility Air Regulatory Group (UARG). The comments that were submitted, along with responses to these comments, are summarized in this document. The summary of comments and responses serves as the basis for the revisions made to the opacity provisions between proposal and promulgation.

1.1 SUMMARY OF CHANGES SINCE PROPOSAL

In response to public comments received on the proposed rulemaking and as a result of EPA reevaluation, three major changes were made in the proposed opacity provisions prior to promulgation. The proposed requirement to conduct opacity observations and to record and report the opacity results

during each performance test has been changed to require that these tasks be performed during the initial performance test only.

The promulgated revisions allow a source owner or operator to request the Administrator to use an EPA certified observer, if available, to conduct and record the opacity observations. These requests will be included in the notification required under Section 60.7(a)(6). If, for some reason, EPA cannot furnish a certified observer, then the source owner or operator must obtain a certified observer to conduct and record the opacity. In either case, it is the responsibility of the source owner or operator to report the opacity results. The inability of a source owner or operator to secure a visible emissions observer will not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

If visibility or other conditions prevent the opacity observations from being taken concurrently with the initial performance test, the opacity observation test would be rescheduled as soon after the performance test as possible, but not later than 30 days after the initial test. In these cases, the promulgated revisions also allow the 30-day prior notice to the Administrator of the opacity observation test for compliance purposes to be waived. The visible emissions observer will determine whether visibility or other conditions prevent the opacity observations from being made concurrently with the initial performance test based on procedures in Method 9 of Appendix B (40 CFR Part 60) and on the observer's past experience in reading opacity.

In addition to the previously discussed changes which are being promulgated, a separate revision to the opacity provisions in 40 CFR Part 60 is being proposed in response to public comments and EPA reevaluation. The proposed revision would allow a source owner or operator the option of

submitting to the Administrator the results of continuous opacity monitoring by transmissometer for the purpose of determining compliance with the respective opacity standard in lieu of Method 9 results. If monitoring results are submitted for compliance purposes, the owner or operator would not be required to conduct an opacity observation test using Reference Method 9.

2.0 SUMMARY OF PUBLIC COMMENTS

The list of commenters, their affiliations, and the EPA docket number for each of the comments are shown in Table 2-1. Nineteen letters commenting on the proposed opacity provisions were received. A public hearing was not held because it was not requested. All of the comments and responses are discussed in this chapter. A summary of changes made in the final opacity provisons is included in Chapter 1. The docket reference is indicated in parentheses in each comment.

2.1 OPACITY PROVISIONS

2.1.1 Comment: A trade association (IV-D-1) agreed that recordkeeping by owners and operators of affected facilities subject to opacity standards was desirable; however, the commenter did not agree that reporting the results was necessary. The commenter expressed a reluctance to furnish EPA with data that would be used to determine best demonstrated technology (BDT) because the association felt that EPA had a history of misusing data in determining standards for the aggregate industry. As an example of this, the trade association cited AP-42, "Compilation of Air Pollutant Emission Factors," which it felt grossly overestimated the aggregate industry's contribution to air pollution. The association suggested that EPA work with aggregate producers and equipment manufacturers when the Agency reviews the new source performance standards (NSPS) at 4-year intervals. The commenter recommended that owners and operators of affected facilities subject to opacity standards be required to record opacity observations and retain the records for 4 years. Another trade association (IV-D-14) believed that reporting of opacity observations in all instances

was unnecessary. It was suggested that the owner or operator of affected facilities record and retain opacity observations on their premises and make them available to EPA for inspection and enforcement purposes.

Response: In the Administrator's judgment, the requirement to report the results of opacity observation tests is just as important as the requirement to record the data. As stated in the proposal preamble, the primary reason for the opacity observation recordkeeping and reporting requirement is to determine compliance with the opacity standard. It would serve no useful purpose for the Agency to require that the opacity observations made during compliance testing be recorded and retained in the plant files because neither the Agency nor the State or local enforcement office (if States have received delegation authority) is sufficiently staffed to be able to visit each source to review the opacity results to determine compliance. Indeed, even if enough enforcement staff were available to accomplish this, it would not be making the best use of the Agency's available resources in terms of time and money. The Administrator believes that reporting the observation test results is necessary for determining compliance and, therefore, no change has been made in the reporting requirement. Also, since the reporting requirement is being kept, it would not be necessary to retain the opacity observation results for 4 years as recommended. A 2-year records retention period is still appropriate.

One of the commenters expressed a reluctance to furnish EPA with data that would be used to determine BDT and cited an example of how AP-42 grossly overestimated the aggregate industry's contribution to air pollution. First, it should be noted that Section 114 of the Clean Air

Act (CAA) has given EPA broad authority to secure information needed in the development of NSPS for new stationary sources under Section 111 of the Act, such as conducting tests, examining records, and any other information reasonably required for the purpose of developing such standards.

The data accumulated during this NSPS development process are also used to develop the emission factors for the particular emission source category. The term "emission source category" is used to indicate a separate emission factor report. These reports may be categorized by industry, by process, by product, by fuel, or by other common denominators. The AP-42 is a compilation of emission factor reports that provide persons working in air pollution with documented, technically acceptable estimates of emission rates for sources. The EPA believes that the quality of the emission factor reports can only be enhanced by the availability of additional data and that, in general, controversy occurs when the data are limited. Moreover, with regard to standard setting and BDT determinations, the applicable industry has ample opportunity during the standards development process to review and comment on the data collected, the associated emission limit, and the NSPS emission factors. For example, in the early stages of development, source owners and operators and equipment manufacturers are contacted for information on the industrial process, the sources of emissions, technology available to control the emissions, and the associated emission control levels. This information is documented in a background information document (BID) along with estimated economic and other impact considerations and sent to the applicable industry and equipment vendors for review and comment.

The affected industry and other interested parties usually also have an opportunity to present their views and comments at an open meeting of the National Air Pollution Control Techniques Advisory Committee (NAPCTAC) before an NSPS is proposed in the Federal Register. After proposal, the Agency will hold a public hearing, if requested, and a comment period, usually of 75 days, is allowed for interested parties to submit comments on any aspect of a proposed NSPS. In addition, EPA relies upon the data which evolves in the NSPS process to develop or update the AP-42 sections for the emission source category.

2.1.2 Comment: A law firm (IV-D-7) suggested that EPA consider adding a provision to allow for the waiver of opacity tests after the initial performance test. The National Council of the Paper Industry for Air and Stream Improvement (NCASI) (IV-D-8) felt that the statement in proposed Section 60.11(e)(1) which indicates additional Method 9 observations shall be taken "at such times as may be required by the Administrator" should be clarified to state that Method 9 observations are not required during periodic particulate emission tests conducted after the initial performance test. The commenter went on to say that many States which have received delegation authority from EPA to carry out the NSPS program do require sources to perform periodic particulate emission tests for compliance purposes, in addition to requiring excess emission reports based on continuous opacity monitoring.

Response: In consideration of these comments and in an effort to reduce the recordkeeping and reporting costs associated with periodic opacity observations, the final rule has been revised to require that the owner or operator of an affected facility, to which an opacity standard

applies, conduct, record, and report opacity observations during the initial performance test only. Generally, NSPS require only an initial compliance test for each affected facility. Therefore, the opacity recordkeeping and reporting requirements have been limited to the initial compliance test. However, this limitation does not affect either the EPA's or the States' authority to require a source owner or operator to conduct periodic emission and opacity observation tests after the initial performance test.

2.1.3 Comment: A State agency (IV-D-5) noted that some States specifically exempt colored gas plumes, such as those from nitric acid plants, from their opacity regulations. The commenter did not think that Method 9 was developed with the intent of applying it to colored gases and suggested that colored gas plumes be specifically exempted from the opacity recordkeeping and reporting requirements. The NCASI (IV-D-8) requested that EPA clarify that Method 9 observations are only required during performance tests for particulate matter and that observations are not required during performance tests for SO_2, NO_x, TRS, or other pollutants regulated under a particular NSPS. One corporation (IV-D-13) strongly opposed the proposed revisions because they believed the proposal would impose an unjustifiably burdensome and costly increase in opacity testing. The commenter was concerned about the requirement to conduct opacity observations concurrently with each performance test because it encompassed all performance tests (both initial and subsequent tests) without discrimination as to type of pollutant. The commenter believed the EPA's intent was to limit the proposed requirement to a new source's initial performance test for particulate emissions and recommended that the final revision be clarified to reflect this intent.

Response: These amendments do not affect the applicability of Method 9. The method is used for determining the opacity of colored gas plumes, such as those from nitric acid plants, and therefore colored gas plumes will not be exempted from the opacity recordkeeping and reporting requirements.

As stated in the previous response, the final revision has been changed to require an owner or operator of an affected facility to which an opacity standard applies to conduct opacity observations, record the opacity, and report the results only for the initial performance test, not for subsequent tests. The phrase "to which an opacity standard applies" eliminates the need to designate the type of pollutant for which the opacity observation is to be conducted because the applicable NSPS would specify the particular pollutant for which the opacity observation is to be performed. This final rule would not extend the opacity standard beyond what is required by a particular NSPS.

2.1.4 Comment: A trade association (IV-D-1) questioned whether the 30-day prior notification to EPA of the opacity observation was practical because there is no assurance that the plant would actually be operating on a specific day, or that visibility conditions would permit opacity observations on that date. The commenter felt that the uncertainty of operating and visibility conditions at a future date did not justify the cost of this procedure and, therefore, recommended that the 30-day prior notice to EPA of the opacity observation not be implemented. A second commenter (IV-D-14) felt that requiring advance notification of opacity observations in all instances was unnecessary, but offered no support for this conclusion.

A law firm (IV-D-7) was concerned about the provision which states ". . . if visibility conditions prevent opacity observations [concurrently

with the performance test], then observations shall be conducted within 60 days after achieving the maximum production rate . . . but no later than 180 days after initial start-up . . ." The commenter stated that start-up problems could delay a facility from achieving the maximum production rate or otherwise force a facility to conduct the initial performance test near the end of the 180-day period. For example, if weather conditions did not permit the opacity observation to be taken simultaneously with the performance test and there was not enough time to reschedule the opacity observation within the 180-day time period, a source could fail to meet the provision through no fault of its own. Further, such a situation might not permit a source to give the 30-day notice required. Thus, the commenter recommended that the provision be revised to allow the opacity observations to be rescheduled within 60 days of the completion of the performance test if visibility conditions prevent opacity observations concurrently with the performance test.

Response: The purpose of the 30-day prior notification to EPA of the opacity observation test is to allow time for the appropriate EPA, State, or local enforcement agency to have an observer present during testing. Once a source reaches its maximum production level and the level at which the opacity observation would be performed, it can be assumed that it will continue to operate at that level on a daily basis unless something unforeseen occurs, such as a breakdown in the process or emission control equipment or adverse weather conditions. However, the prediction of these types of occurrences is beyond the control of both the source owner or operator and EPA. The Agency cannot justify eliminating the 30-day prior notification requirement based on the likelihood

that something unforeseen might prevent the opacity observation from taking place on the scheduled date. The Administrator believes the 30-day prior notification requirement is practical and necessary. However, if visibility or other conditions prevent the opacity observation from being taken on a scheduled date or prevent the opacity observation from being taken simultaneously with the initial performance test required under 40 CFR 60.8, then the opacity observation should be rescheduled as soon after the mass emission performance test as possible, but not later than 30 days after the initial test, depending on the particular circumstances. In these cases, the 30-day prior notice to EPA would be waived and the source owner or operator would advise EPA of the rescheduled date for the opacity observation. The rescheduled opacity observations will be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under Section 60.8. The visible emissions observer will determine whether visibility or other conditions prevent the opacity observation from being made concurrently with the initial performance test in accordance with procedures contained in Method 9 of Appendix B (40 CFR Part 60) and based on the observer's experience in reading opacity. Also, if the affected facility is already using a continuous opacity monitor, an amendment to Section 60.11(b) is being proposed to allow the submittal of those monitoring results for compliance purposes along with the mass emission test results in lieu of conducting an opacity observation.

In addition, it does not appear that the cost of this procedure would be a significant factor because (1) the 30-day notification would be required only for the initial opacity observation test, and (2) if an

EPA, State or local official is present during the opacity observation, the owner or operator may elect to request that official to record the opacity readings in lieu of contracting for that function, thus eliminating the cost of an observer. The Administrator believes that the 30-day prior notification to EPA of the opacity observation is necessary for effective enforcement and, therefore, this requirement has not been changed in the promulgated revision.

2.1.5 Comment: Several commenters (IV-D-7, IV-D-8, IV-D-13, IV-D-15, IV-D-16, IV-D-19) requested that consideration be given to reducing the proposed minimum opacity observation period of 30 6-minute averages (3 hours) for each performance test for the following reasons:

1. A 3-hour period probably would not produce better data and may decrease the quality of the data by increasing the burden on the opacity observer, i.e., visual fatigue, and a corresponding reduction in the validity of the Method 9 results.

2. This quantity of testing is not necessary to determine compliance with opacity limitations.

3. It would require several extra persons on every test in order to take readings every 15 seconds over a 3-hour period.

4. A 3-hour period is excessive and redundant. If a unit is operating smoothly and at a steady production rate, the opacity should not be fluctuating over the course of 3 hours.

5. The requirement to conduct 720 opacity readings (30 6-minute averages) without concurrent performance testing appears unreasonable.

The commenters offered the following alternatives for minimum opacity observation periods:

1. 75 opacity readings (3 Method 9 runs).

2. One (1) hour of observations taken concurrently with one of the three particulate runs.

3. A minimum of two representative 6-minute average opacity readings taken concurrently with each one of the required three particulate sampling runs.

4. Four 6-minute average opacity observations during a performance test.

5. One (1) hour of observations during the same time period as required for performance tests in Section 60.8 or as approved by the Administrator.

6. Thirty 6-minute readings only for the initial performance test, not for subsequent performance tests.

Response: The EPA has considered the reasons given for reducing the minimum opacity observation period of 30 6-minute averages (3 hours) for a performance test and the alternatives offered by the commenters and has decided that a minimum of 30 6-minute averages for the opacity observation test is necessary in order to provide the Agency with enough data upon which to determine compliance with the opacity standard.

During the standard-setting process, opacity data from many different emission sources are obtained. An analysis of the opacity data will result in identifying the highest opacity levels reached by one or more emission sources. The opacity standard is based on consideration of the highest opacity levels normally expected from complying sources within the source category.

The Administrator does not agree that a 3-hour period would result in visual fatigue for the observer, a corresponding reduction in the

validity of the Method 9 results, or would require extra persons for every test. Most sources subject to an opacity standard are also subject to a mass emission limit. In these cases, the initial performance tests to determine compliance with both standards should, if possible, be conducted simultaneously. The performance tests would consist of three separate runs using the applicable test method. Generally, each run would last at least 1 hour, but these three test runs would seldom be made without a break in between. It would be necessary to allow time after each run to prepare for the next one, which would also provide a rest period for the opacity observer. Even if the opacity observation test were not conducted concurrently with a mass emission performance test (for example, some affected facilities are subject only to an opacity standard), the opacity observer should take periodic breaks during the 3-hour period to avoid any visual fatigue as described in the method. This procedure would ensure the validity of the Method 9 results and would alleviate any need for extra persons in conducting the opacity observation test.

Another reason given by the commenters for reducing the 3-hour period was that the opacity should not fluctuate over the course of 3 hours. However, it has been the Agency's experience that opacity does sometimes vary during the 3-hour period. For example, in the NSPS for lime manufacturing plants promulgated on April 6, 1984 (49 FR 18076), the opacity standard for kilns was revised from 10 percent to 15 percent based upon available data. A total of over 1,200 Method 9 6-minute averages were gathered simultaneously with Reference Method 5 mass emission tests (each test lasted 3 hours); 889 were zero, but 4 of the

6-minute average opacities exceeded 10 percent. All opacity averages were normalized to a 3.0 meter stack diameter. Test data for one facility showed that there were two 6-minute average opacities at 10.6 percent during the 3-hour period. This clearly illustrates that opacity does sometimes vary during a 3-hour period. Consequently, in order to protect the source owner or operator, it is important to conduct enough observations to assess variations during the performance test to ensure that representative opacity data are collected.

Although the comments offered several alternative minimum time periods of 1 hour or less, the Administrator does not believe that these time periods are of sufficient length to obtain enough data to ensure that representative results are obtained.

For these reasons, the Administrator believes that a 3-hour observation period is reasonable and has not reduced the minimum opacity observation period of 30 6-minute averages. However, as discussed previously, the opacity observation, recordkeeping, and reporting requirements apply only to the initial performance test, not to any subsequent performance tests.

2.1.6 Comment: (IV-D-10, IV-D-11, IV-D-12, IV-D-18, IV-D-19) Several commenters recommended that facilities required to install continuous opacity monitors be exempt from the opacity observation test for the following reasons:

1. Opacity monitors cannot be used as an enforcement tool; the opacity monitor could supply opacity data which, however, would indicate whether revisions to opacity limits are needed.

2. The opacity monitor results should be more reliable than opacity observations. The proposal requires 30 6-minute average opacity observations

(720 15-second observations), whereas the opacity monitor can record continuous readings (unaffected by the normal problems encountered with opacity observations (meteorological conditions, fatigue).

3. Requiring opacity observations during performance tests would require using additional testing personnel. The costs in terms of time and money outweigh any perceived benefit from the data collected. Use of the opacity monitor to obtain the necessary data would eliminate this expense to the source operator.

4. Requiring opacity observations is of particular concern for owners or operators of facilities with tall stacks, which must be observed at a significant distance from the stack. In some cases, a transmissometer may be the only accurate method for obtaining opacity readings from tall and large diameter stacks and plumes which contain condensed, uncombined water vapor.

5. The use of opacity monitors would be less costly, especially in the Northwest where clouds often preclude visual readings. Since the transmissometer is used to calibrate/certify the Method 9 observers, it seems appropriate to permit its use for sources which do not contain significant condensable matter.

6. Continuous opacity monitors are already required by EPA at affected facilities. Therefore, to require Method 9 visual observations also would place another burden on owners/operators to collect data already being recorded by the continuous opacity monitor.

Response: After review and consideration of these comments, the Administrator has determined that sources already required to use continuous opacity monitors (COM) should be allowed the option of submitting monitoring

results in lieu of conducting a Method 9 visual observation during the initial performance test or any subsequent performance test for the purpose of determining compliance. Recent studies (Docket A-85-08, Item II-A-1) have shown that COM results are reliable if the monitors have been properly operated and maintained. Since COM are capable of producing reliable data, it is therefore reasonable to allow those results to be used in lieu of Method 9 results. In a separate Federal Register notice, the Agency is proposing to revise the General Provisions, 40 CFR 60.11(b), to allow for the alternative of submitting COM results for compliance determination in lieu of conducting an opacity observation during any performance test requested by the Administrator (see response to comment 2.1.2).

2.1.7 Comment: A utilities company (IV-D-9) asked EPA to consider the proposed requirement for facility owners or operators to conduct opacity observations rather than EPA furnishing qualified observers for the following reasons. Observers would have to come from engineering consultants, test firms, or from the owner or operator's own staff if the Agency were to discontinue furnishing them. Such observers would likely never achieve the experience level of the present EPA observers because they would probably conduct opacity observations much less frequently. As a result, EPA would be required to train and certify a significantly larger, non-agency observer force than would otherwise be required and the present quality of opacity compliance observations would be at risk.

Another company (IV-D-11) stated that 40 CFR 60.11(e)(1) presently allows an owner or operator of an affected facility to request the Administrator to determine the opacity of emissions. The commenter added that EPA, State, and local agencies already have certified visible emissions readers

on staff. The owner or operator may not have this capability and, therefore, would have to train someone or contract someone to collect the data requested. The commenter cited a specific example of a recent performance test where the local agency had a certified inspector record opacity, and the owner/operator contracted for a certified reader to also record opacity because he thought that was required by the proposal.

An air pollution control agency (IV-D-4) expressed concern over the objectivity of industry-collected opacity data, especially in instances where it is used to demonstrate compliance with opacity standards. The agency believed that Method 9 observations either by the firm conducting the emission test or by State/local air officials would be a more viable alternative.

Response: It is the source owner or operator's responsibility to conduct the opacity observations, and to record and report the opacity during the initial performance test. In order to accomplish this, the owner or operator may (1) request a certified visible emissions observer from the EPA, State, or local agency to conduct the test, or (2) conduct the opacity test in-house, or (3) hire a contractor to conduct the test. Prior to the proposed revision of Section 60.11(e)(1), an owner or operator could request the Administrator to determine the opacity of emissions from the affected facility during the initial performance tests, but there was no specification as to the number of observations or provision for recording and reporting the results. The proposed revision of Section 60.11(e)(1) required that the owner or operator of an affected facility subject to an opacity standard conduct opacity observations, record, and report the opacity results. It was not the Agency's intent

that an owner or operator should contract for a certified visible emissions reader if an EPA, State, or local certified reader were available during the test to record the opacity. Therefore, the final rule [Section 60.11(e)(3)] has been clarified to indicate that the owner or operator of an affected facility may request a certified visible emissions reader from the EPA, State, or local agency, if available, to conduct opacity observations and to record the opacity readings. These requests would be included in the notification required under Section 60.7(a)(6). If for some reason, the EPA, State or local official cannot be present during the test or cannot conduct the opacity observation, then it is the responsibility of the owner or operator to obtain a certified reader to conduct and record the opacity. In addition, the owner or operator is responsible for maintaining the data file and reporting the test results. The inability of the source owner or operator to secure a visible emissions observer will not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

2.1.8 Comment: (IV-D-7) The commenter, a law firm representing UARG, was concerned that the proposed revision requiring the owner or operator to provide a certified observer to make opacity observations "concurrently with each performance test required in Section 60.8" may be broader than intended. The revision, as written, could be construed to require, for source categories subject to an opacity limit, an opacity observation during every performance test required under Section 60.8 instead of only those involving a standard which contains an opacity limit. Therefore, the commenter suggested the language be clarified to require an opacity reading only if the standard for which the performance test is being run

contains an opacity limitation.

Response: The intent of the proposed revision was to require sources to conduct opacity observations concurrently with every performance test (provided that the performance test is for a pollutant for which an opacity standard has been established) required under Section 60.8. However, as discussed in a previous response, the final rule has been revised to require sources subject to an opacity standard to conduct opacity observations concurrently with the initial performance test only as required under Section 60.8, not for any subsequent performance tests.

2.1.9 Comment: The NCASI (IV-D-8) referred to proposed Section 60.11(e)(1) which allows Method 9 observations to be conducted at a different time from the performance test if visibility conditions prevent opacity observations. The commenter did not see any benefit to making visible opacity readings if they could not be made at the same time as the particulate emissions tests, since the main purpose of gathering opacity data appeared to be the examination of simultaneous opacity readings and particulate mass emission measurements.

Response: The opacity standard is a separate enforceable standard for sources subject to an opacity limit. The main purpose of the opacity observation is to determine a source's compliance with the opacity standard. The Agency agrees that it would be most useful to conduct the mass emission and opacity observation tests simultaneously, but it is not essential to do so, and as discussed in the previous comment, this may not always be possible. Therefore, in instances where the mass emission and opacity observation tests cannot be conducted simultaneously, the final revision allows Method 9 opacity observations to be conducted

at a different time from the mass emission performance test.

2.1.10 Comment: A utilities service company (IV-D-17) believed that opacity observations were a useful tool for determining potential opacity problems, but that violations of opacity standards should be based upon review of transmissometer recorded opacity data which more accurately reflect opacity conditions. The commenter stated that Reference Method 9, the procedure used to observe opacity emissions, indicates that there is a statistical error of ± 7.5 percent for observed opacity readings. This compares with a ± .5 percent error expected from continuous opacity monitoring equipment. Furthermore, unlike transmissometers, opacity observations cannot be performed during adverse weather such as fog, rain, snow, and overcast conditions, thereby limiting the periods when emission tests can be conducted.

The commenter also felt that the use of observed opacity data as a means of determining compliance with an opacity emission standard was antiquated because Federal and State regulatory agencies require the use of "best available technology." Given the inherent inaccuracies of observed opacity, and in order to provide EPA with accurate opacity data on which to base its review of performance standards, the commenter recommended that only transmissometer data be required to be reported. It was also recommended, based on the inaccuracies of observed data, that if continuous opacity recording equipment has been installed at a source, no opacity observations be required during performance tests.

Response: As discussed in a previous comment and response, a revision to the opacity provisions is being proposed to allow new sources using COM (transmissometers) to, at the option of the source owner or operator,

record continuous monitoring data in lieu of Method 9 data and to report those monitoring results for compliance purposes. No visual opacity observations would be required if COM results are recorded and reported for the initial performance test. The proposed revision to the opacity provisions also allows the source owner or operator the alternative of submitting COM results in lieu of Method 9 data for the purpose of determining compliance with the opacity standard during any performance test conducted after the initial performance test.

Reference Method 9 is the method specified in the General Provisions for determining compliance with the respective opacity standard. As described by the commenter, there may be some advantage to using a COM over conducting visual observations for determining compliance with the opacity standard. Further, EPA believes that COM do provide reliable data, if properly operated and maintained.

With regard to the commenter's reference to a statistical error of $\pm$ 7.5 percent for observed opacity readings, the introductory paragraphs in Method 9 describe the range of the "positive observational error" which would be taken into account for enforcement purposes. (Positive error is a reading higher than the actual opacity level.) The purpose of these paragraphs is only to make clear that sources subject to opacity standards are not to be penalized for apparent violations that are due to observational error.

More specifically, the introduction to Method 9 provides that the accuracy of the method be considered for enforcement purposes and describes that accuracy in terms of the following ranges of positive error derived from extensive data obtained in the field:

1) For black plumes . . ., 100 percent of the sets were read with a positive error of less than 7.5 percent opacity; 99 percent were read with a positive error of less than 5 percent opacity.

2) For white plumes . . ., 99 percent of the sets were read with a positive error of less than 7.5 percent opacity; 95 percent were read with a positive error of less than 5 percent opacity.

This language does not suggest a statistical error of ± 7.5 percent. Rather, it describes the range of single 6-minute observations.

2.1.11 Comment: A company (IV-D-18) referred to EPA's use of a new equipment data base (referring to the initial performance test that would be conducted on a new facility that will be using new emissions control equipment) which would be used later to update opacity standards. It was felt that a more appropriate data base could be obtained by including older, well-maintained precipitators, which are approaching the end of their useful life, but are still able to meet NSPS particulate mass levels.

Response: The Agency agrees that data taken under conditions described by the commenter are useful. As part of its routine 4-year review of each NSPS, the Agency contacts the affected sources and solicits such data. However, the General Provisions (40 CFR 60.8) require that new, modified, or reconstructed sources conduct an initial performance test to determine if the source is in compliance with the applicable NSPS. Often this is the only time mass tests are performed and, therefore, provides the only opportunity to obtain opacity data while knowing the source is in compliance with mass emission limits. The Agency believes that, although slight degradation is possible over time, older control equipment that is properly designed, operated, and maintained should be able to achieve the same level of opacity during its useful life as new control equipment. It is, therefore, reasonable to obtain and use data from initial compliance tests during

subsequent standard reviews. As noted above, however, the Agency also welcomes and in fact directly solicits all available data for consideration during the review of a standard.

2.1.12 Comment: (IV-D-8) The commenter recommended that EPA consider reducing excessive amounts of plume observations in certain situations. The example cited was that of an electrostatic precipitator with two chambers and two separate stacks that would require a minimum of 6 hours of particulate emission testing (three 1-hour runs on each stack) to develop the mass emission rates and, as implied by the proposal, 6 hours of Method 9 observations.

Response: As discussed in a previous response, the Administrator does not consider 3 hours of opacity observations for each stack to be excessive. However, in cases where COM are being used on an affected facility, a change to the General Provisions is being proposed to allow the owner or operator the alternative of submitting those monitoring results in lieu of conducting Method 9 observations for compliance purposes. If COM are not being used, the owner or operator may petition the Administrator under Section 60.11(b) for approval of an alternative compliance procedure. Because the Administrator does not believe the opacity observation period of 3 hours per stack in the cited example is excessive and because of other possible alternatives available, no change has been made in the final rule with regard to reducing the 3-hour observation in these situations.

2.1.13 Comment: Two State air pollution control agencies (IV-D-2 and IV-D-5) fully supported the proposed opacity recordkeeping and reporting requirements. One of the State agencies has used the procedures proposed for several years and they have proved to be a useful method of making

assessments of a source's continued compliance with the applicable mass emission limitation. Other commenters (IV-D-4 and IV-D-6), however, questioned the purpose of the proposed revisions and suggested that the opacity data base EPA seeks may already be established and that EPA should contact the State and local agencies for such data. For example, one of the commenters is a local agency (IV-D-4) that routinely conducts opacity observations using Method 9 to ensure compliance with the opacity limits required by new source permits. One company (IV-D-6) stated that data collection for the purpose of NSPS review by EPA could be accomplished by noting the number of violations of local standards. For example, California's opacity regulations are more stringent than those of EPA; therefore, compliance with EPA opacity standards could be confirmed by reviewing local Air Pollution Control District (APCD) records for compliance with California opacity regulations.

Response: Contrary to the suggestion that the opacity data base EPA seeks may already be established, it has been the Agency's experience that the opacity compliance data are not generally available. This is because prior to the proposed opacity provisions, there was no requirement for the opacity data to be recorded and reported. As stated previously, the primary purpose of the revision is to demonstrate compliance with the respective opacity standard. The opacity data obtained for compliance purposes would also be useful during the 4-year review process in determining whether revisions to opacity limits are needed but this would be an added benefit, not the primary purpose of the opacity revision. It is true that some State regulations do exceed EPA standards. Section 60.8(b) of the General Provisions allows a performance test to be waived if the Administrator is satisfied that a source has demonstrated by other means

that it is in compliance. In addition, the Agency, in delegating enforcement authority to a State under Section 111(c) of the Clean Air Act, may approve reporting requirements or an alternative means of compliance (under 40 CFR 60.8) adopted by the State. In that event, affected sources within the State would be relieved of the obligation to comply with duplicative EPA requirements, provided the source owner or operator complies with comparable requirements established by the State.

2.1.14 Comment: A utilities company (IV-D-15) questioned the need for the proposal because he believed that most of the proposed provisions were already required by Section 60.4 with significant requirements for opacity testing, monitoring reporting, and data retention. The commenter, who provides electric energy to about one-third of the population of Texas, stated that all of their units were regularly checked for opacity compliance both visually and with continuous monitoring instruments. Since State agencies and EPA have access to such data from all types of emission sources, the commenter did not believe it was justified to establish additional data collection requirements. Another company (IV-D-11) asked if EPA could set up a mechanism to have the opacity data, which are already being collected, submitted to EPA.

Response: Section 60.4 of 40 CFR Part 60 provides only the mailing address for submittal of all requests, reports, applications and other communications to the Administrator in accordance with requirements contained in Part 60, including the appropriate mailing addresses for those States which have received delegation authority to implement and enforce NSPS for sources located in those States. This section does not contain any requirements for opacity testing, monitoring, reporting, or data retention. Rather, these requirements are contained in other sections

of the General Provisions in Part 60. The Administrator does have the authority under Section 114 of CAA to request opacity data from sources subject to NSPS and often does request the data. However, the Agency has found the opacity data to be limited. Even when the data are available, the data are not always useful because it lacks supporting information regarding the operating conditions under which the data were obtained. Therefore, the opacity requirements are necessary.

2.1.15 Comment: A State air pollution control agency (IV-D-19) expressed support of the recordkeeping and reporting requirements of the opacity observations for the purpose of demonstrating compliance with applicable opacity standards. However, the commenter did not agree with the approach of combining two activities, compliance determination and opacity standard adjustment, under one set of criteria. The commenter was of the opinion that the result of this approach would be overly intensive data requirements for determination of compliance with an opacity standards (e.g., 3 hours testing concurrently with each performance test) and a weak procedure for establishing adjusted opacity standards. The commenter recommended the following changes be made in the proposed Section 60.11 to address these concerns raised above: (1) 1 hour of observations during the same time period as required for performance tests in Section 60.8, or as approved by the Administrator, (2) allow the results of continuous monitoring by transmissometer to be used in place of visual observations, (3) rewording of the existing provisions in Section 60.11(e) allowing the owner or operator of an affected facility to petition the Administrator to make adjustment to an opacity standard, and (4) addition of procedures (a new appendix which they identified as Appendix E to 40 CFR Part 60) for

performance testing and analysis, and opacity observations made for the purpose of establishing an adjusted opacity standard. Also, facilities using a COM would record the monitoring produced during each performance test required under the recommended new Appendix E.

Response: The first two suggested changes are discussed in previous comments and responses. The proposed revision was not intended to combine opacity compliance determinations and opacity standard adjustments. Indeed, the proposal did not change any of the existing provisions contained in Section 60.11(e) with regard to procedures to be followed in requesting and establishing an adjusted opacity standard. The suggested rewording of the existing provisions in Section 60.11(e) and the recommended addition of a new Appendix E to 40 CFR Part 60 regarding procedures for establishing an adjusted opacity standard have been evaluated. The procedures contained in the State air pollution control agency's recommended appendix are very specific and, in some cases, may be appropriate for establishing an adjusted opacity standard. However, the existing general provisions allowing for an adjusted opacity standard were written to allow flexibility for opacity standard adjustment on a case-by-case basis. Each source requesting establishment of an adjusted opacity standard would likely make such requests because of some unique circumstances that would prevent it from complying with the applicable opacity standard. The Administrator believes the procedures for establishing an adjusted opacity standard should be general enough to accommodate a range of situations. Therefore, no changes have been made with regard to either the suggested rewording of the existing provisions in Section 60.11(e) or the addition of a new Appendix E containing procedures for establishing an adjusted opacity standard.

2.1.16 Comment: A State agency (IV-D-3) was concerned that the proposed opacity provisions (1) did not mention whether the values are visual readings, instrument readings or both, and (2) did not mention how often the visual or instrument readings are to be taken.

Response: The proposed revision in Section 60.11(e)(1) stated " . . . The minimum total time of opacity observations shall be 30 6-minute averages for each performance test or other set of observations. . . ." The final opacity provisions in Section 60.11 require opacity testing only during the initial performance test. A separate revision to the opacity provisions is being proposed to allow COM (transmissometer) readings to be reported in lieu of visual observations during any performance test requested by the Administrator.

2.1.17 Comment: (IV-D-8, IV-D-13) These commenters were concerned that the proposed revisions did not address how the opacity observation would be conducted where two or more sources share a common stack. When this happens, no meaningful comparison can be made between opacity and particulate emissions because of the mixing of flue gases from multiple sources prior to the chance for opacity observation. As a result, it was requested that EPA exempt sources sharing a common stack from the opacity observation test.

Response: The concerns raised by the commenters would exist independent of and are not affected by the proposed revisions. The Agency addresses these type situations on a case-by-case basis. Depending upon the circumstances, the source owner or operator may measure the combined particulate mass emissions, where two or more sources share a common stack, and compare those results to the applicable combined mass emission limits for those sources to determine compliance. The opacity observation requirement, in

these cases, could be decided based upon site-specifics such as ducting configurations. The Administrator does not believe it is necessary to exempt sources sharing a common stack from the opacity observation test and will review these situations on a case-by-case basis as in the past.

2.1.18 Comment: (IV-D-7) One commenter noted that Section 60.11(e)(2), which states that continuous data "produced during every performance test required by this paragraph" must be recorded and reported, does not itself require performance tests. Instead, Section 60.8 requires performance tests.

Response: The commenter is correct. This sentence has been revised to read " . . . data produced during every performance test required by §60.8 . . ."

2.1.19 Comment: (IV-D-15) One company stated that many of the new provisions in Section 60.11 were identical to existing provisions in Section 60.8, such as testing within 180 days after start-up, pre-test notification, and submittal of written reports. Therefore, the commenter recommended including opacity in Section 60.11(a) rather than repeating all the requirements of Section 60.8 in Section 60.11(b).

Response: Section 60.8 of 40 CFR Part 60 contains provisions for conducting performance tests; Section 60.11(a) contains provisions for determining compliance with standards other than opacity standards; and Section 60.11(b) through 60.11(e)(4) contains provisions for determining compliance with opacity standards. Therefore, it is not appropriate to include opacity provisions in Section 60.11(a). It was necessary to repeat a few of the existing provisions in Section 60.8 again in Sections 60.7 and 60.11 in order to make those requirements applicable under the new opacity provisions.

2.1.20 Comment: A law firm (IV-D-7) referred to docket item II-F-1 which contains the estimated annual industry burden hours associated with the proposed recordkeeping and reporting. The estimate for steam generators (Subparts D and Da) was 128 hours per year, based on a total of 32 respondents. The commenter stated that the estimated burden seemed low for two reasons: (1) EPA had omitted the burden that would accompany Subpart Db regulations, and (2) the estimate appeared to ignore the fact that the revision would apply to compliance determinations made at any time not just those at initial start-up, and would include pollutants in addition to particulate matter. The commenter claimed that there are over 160 steam generators subject to the NSPS and that compliance determinations are made approximately once per year. Therefore, the burden for the electric utility industry could be five times higher than estimated.

A second commenter (IV-D-10) believed that EPA had significantly underestimated the average annual industry-wide recordkeeping and reporting burden because it did not include approximately 800 new steam generators proposed to be regulated over a 5-year period under 40 CFR Part 60, Subpart Db, and possibly an equal number of affected sources under the advanced notice of proposed rulemaking (ANPR) for industrial boilers smaller than 250 million Btu/hr.

Response: The estimated annual industry burden hours associated with the proposed recordkeeping and reporting requirements for steam generators (Subparts D and Da) did not include compliance determinations made after the initial compliance test. This is consistent with the final revision which requires opacity recordkeeping and reporting

only during the initial compliance test and, therefore, it is not necessary to recalculate the average annual industry-wide burden. The annual industry burden estimate included only source categories for which opacity standards had been promulgated as of January 1984. Therefore, the opacity recordkeeping and reporting requirement for Subpart Db sources and sources under the ANPR for industrial boilers smaller than 250 million Btu/hr were not included in the estimate. Rather, the opacity recordkeeping and reporting burden associated with these source categories, as well as other source categories promulgated after January 1984, will be calculated and submitted to the Office of Management and Budget (OMB) for review and approval on a standard-by-standard basis.

The OMB agreed to review one information collection requirement (ICR) for the opacity recordkeeping and reporting to cover 20 source categories. It was also agreed that once OMB approves the ICR and the final opacity provisions are promulgated, the appropriate burden hours from this ICR will be moved to the ICR's for each of the 20 source categories. Any necessary adjustments in the opacity recordkeeping and reporting burden will be made in the ICR for the individual source category.

2.1.21 Comment: The NCASI (IV-D-8) stated that EPA apparently did not consider the total costs associated with the proposal. Travel time and expenses for a Method 9 observer would be in addition to the 3 hours for plume viewing. If the particulate testing results were found to be unacceptable or could not be carried out as scheduled or, for some reason, the Method 9 observation could not be conducted, the observer would have to return. According to the commenter, some industrial facilities may have a certified observer on site who could be used for the Method 9 observations. However, this observer would have to maintain his or her

qualification by being recertified every 6 months, which normally involves travel and expenses for attending a government-run smoke reading certification program.

Another commenter (IV-D-18) was also concerned about the costs for obtaining a certified observer. This commenter estimated that a 2-day compliance test would cost between $1,000-2,000. This cost could double because of delays attributable to poor reading conditions. According to the commenter, most facilities cannot justify the costs involved in keeping a reader certified and, therefore, would require the use of consultants. A law firm (IV-D-7) requested that EPA identify for OMB review the costs to train additional certified observers or hire consultants and the costs of scheduling the necessary tests. It was requested that EPA address these cost considerations prior to promulgating the proposed requirements.

Response: The final opacity provisions allow a source owner or operator to use an EPA-certified visible emissions observer, if available, to conduct and record the opacity observations. However, if an EPA observer is not available, it is estimated that the certification costs for a visible emissions observer employed by the source would be about $1400 (includes travel, per diem, hotel, and wages for 2 days, twice a year; the twice-a-year assumption is very conservative in that only a one-time test is being required and no more than one certification would be necessary); the visible emission observation costs for a 3-hour test would be about $100 (includes 1 hour for data reduction). Therefore, the maximum total certification and observation costs are estimated to be about $1,500. (A breakdown of the estimated costs is contained in Table

2-2.) If the source's observer is employed at a central facility off-site (for example, in the headquarters' environmental department), there would be travel time but this would be offset by the fact that the certification cost would be prorated among the various plants owned by the firm.

The Administrator believes that, in many cases, an EPA, State or local agency certified opacity observer would be available to conduct and record the opacity observations during the performance test and there would be no costs involved for the source owner or operator. In the event one is not available, the Administrator believes the total costs would be reasonable and, in addition, would be only a fraction of the total cost of a performance test conducted under Section 60.8.

2.1.22 Comment: A utilities company (IV-D-9) asked EPA to consider the proposed requirement to record and report continuous opacity monitoring data during compliance testing. The commenter stated that monitor certification typically involves 1 or 2 weeks of field activity, about 30 days for report preparation and about an equal amount of time for agency analysis and response. Since compliance demonstrations are required to be conducted within 60 days after achieving the maximum production rate, certification procedures may not be complete at the time the demonstration is conducted. Therefore, EPA may have to accept opacity compliance demonstration reports pending the outcome of instrument certification.

Response: The General Provisions for NSPS (40 CFR 60.13) currently require that (1) all continuous monitoring systems be installed and operational prior to conducting a performance test, (2) verification of operational status must include, as a minimum, completion of the manufacturer's requirements for installation, operation, and calibration of the monitoring device, and (3) monitoring system performance evaluations must be conducted

during the performance test or within 30 days thereafter and a written report of the results must be submitted within 60 days.

Much of the certification of opacity monitors is performed initially by the manufacturer; that is, the manufacturer certifies that the monitor does meet design criteria in Performance Specification 1 (Appendix B, 40 CFR Part 60). However, as required in Performance Specification 1 and in Section 60.13, after the monitor is installed, it must be operated for a specified length of time and its performance evaluated to ensure conformance with specific operational criteria. This evaluation requires a week to complete. This period of evaluation should take place before the opacity compliance test is conducted to ensure the accuracy of the monitoring results. Therefore, a change to Section 60.13(c) is being made to specify that the COM be certified according to Performance Specification 1 in Appendix B before the compliance test is conducted.

It is important to note that a COM provides the only means through which an owner or operator can with precision assess the relative performance of a control device (Docket A-83-43, entry IV-J-1). As such, the monitor represents a valuable tool which can be used to optimize control equipment and process operations during the time these are coming on line. In most cases, it is to the advantage of the source to utilize the monitor for such purposes before performing the mass compliance test.

2.1.23 Comment: Comments submitted by a law firm on behalf of the UARG (IV-D-7) questioned the second purpose of the proposed revision (to provide EPA with data to use in developing possible revisions to the standards). It was felt that the opacity data would be imprecise and site-specific because the time of day and the intensity of the sunlight

greatly influenced Method 9 opacity results and transmissometer data would vary according to site-specific factors such as type of coal and whether a scrubber is used on the unit. According to the commenter, high opacity readings were not necessarily an indicator of high particulate loadings since opacity may be a function of the nature of the particles not the amount. As a result, the opacity data may not be very useful in developing any industry-wide opacity revisions. The commenter added that since much of the data that would be produced under the proposed revision would be taken during the initial performance test when the control device is new, it would not necessarily be representative of levels achievable over the life of the equipment. Therefore, the commenter recommended that EPA minimize the burdens imposed on individual sources because of the limitations regarding the usefulness of opacity data. A technical service and support company (IV-D-10) also questioned the second purpose of the proposed revision for reasons similar to those of the previous commenter and urged EPA to avoid computing the industry-wide average opacity for a given mass emission rate and setting that opacity as a standard for all plants, many of which could not meet the opacity standard.

A utilities service company (IV-D-17) requested that EPA discontinue the practice of correlating opacity (recorded or observed) with mass emissions because (1) transmissometer readings would be affected directly by changes in particle index of refraction, but not necessarily in proportion to changes in grain loading, and (2) observed opacity readings were subject to a number of possible errors such as water vapor, color of the sky, distance of observer from the stack, sun angle, and human error. The NCASI (IV-D-8) of the paper industry did not believe it was possible to

determine the compatibility of a plume appearance regulation with an allowable mass emission rate.

Response: The Administrator does not agree with the statement that much of the data produced would result from the initial performance test when the control device is new and therefore would not necessarily be representative of levels achievable over the life of the equipment. As noted in the response to comment 2.1.11, the Agency believes that, although slight degradation is possible over time, older control equipment that is properly designed, operated, and maintained should be able to achieve the same level of opacity during its useful life as new control equipment.

Because it is not the purpose of this rulemaking to revise opacity standards or opacity test methods, the comments pertaining to mass/opacity relationships are not relevant to the revision which is being considered here. Nevertheless, the Agency believes it is important that there be no misunderstanding as to how opacity standards are used. Opacity limits used in conjunction with mass emission limits are to ensure proper operation and maintenance of control equipment, to lower compliance testing costs, and to simplify enforcement procedures. Effective enforcement includes initial demonstration of compliance and routine evaluation of control equipment operation and maintenance.

Compliance with particulate mass emission limits can be demonstrated only with EPA Method 5 performance tests. However, Method 5 tests may be too expensive and time consuming to be used routinely to monitor for the proper operation and maintenance of emission control equipment, which is the key factor in continuous compliance with the emission limit. In contrast, EPA Method 9 opacity tests are quicker, simpler, and less expensive than EPA Method 5. Therefore, opacity limits have been adopted

in the standards as an effective tool to assure proper operation and maintenance of control equipment (CAA, Section 302(k)). The opacity limits are set at levels designed to be no more restrictive than the particulate mass emission limits to ensure that any observed violations of the opacity standards accurately indicate a violation of the particulate mass emission limits. The Agency does not base standards on computations of industry-wide average opacity, but rather, opacity standards are based on consideration of the highest opacity levels normally expected from complying sources within the source category. As such, additional data can only benefit the quality of the standard setting process.

Finally, it should be noted that the United States Court of Appeals for the District of Columbia Circuit has specifically upheld the use of opacity standards as a means of assuring control of mass emissions under NSPS in Portland Cement Association v. Train, 513 F.2d 506, 508 (1975).

Table 2-1

LIST OF COMMENTERS ON THE PROPOSED

OPACITY PROVISIONS

Docket Entry No.[a]	Commenter/Affiliation
IV-D-1	Robert A. Wilkinson, P.E., Managing Director Ohio Aggregates Association 20 South Front St., Suite 200 Columbus, Ohio 43215
IV-D-2	Harold E. Hodges, P.E., Technical Secretary Tennessee Air Pollution Control Board Bureau of Environment T.E.R.R.A. Bldg. 150 Ninth Avenue, North Nashville, Tennessee 37203
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IV-D-4	William T. Burkhart, Supervisor Regional Air Pollution Control Agency 451 W. Third Street P. O. Box 972 Dayton, Ohio 45422
IV-D-5	John D. Ledger, Manager Monitoring and Compliance Section Idaho Air Quality Bureau Department of Health and Welfare Statehouse Boise, Idaho 83720
IV-D-6	Donald G. Russell Vice President, Production Shell Oil Company One Shell Plaza P. O. Box 2463 Houston, Texas 77001
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IV-D-19

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[a]These designations represent docket entry numbers for Docket No. A-83-43. These documents are available for public inspection at:
U. S. Environmental Protection Agency, Central Docket Section
West Tower Lobby, Gallery 1, Waterside Mall
401 M Street, S.W., Washington, D.C. 20460

TABLE 2-2

COST OF VISIBLE OBSERVATIONS USING METHOD 9

Certification Costs[a]	
1. Certification fee ($150/time, 2 times/yr)	$300
2. Mileage (200 miles/trip, $0.20/mile, 2 times/yr)	80
3. Per Diem ($25/day, 2 days/time, 2 times/yr)	100
4. Hotel ($35/night, 1 night/time, 2 times/yr)	70
5. Wages, benefits, and overhead ($26.50/hr, 8 hr/day, 2 days/time, 2 times/yr)[b]	848
CERTIFICATION COST:	$1,398
Visible emission observation costs[c]	
1. Duration of readings=3 hours per test (30 6-minute readings)	$ 79.50[b]
2. Data reduction=1 hour per test	26.50[b]
OBSERVATION COST:	$ 106.00
TOTAL COSTS:	1,504.00

[a]For one person to be certified.

[b]Labor cost is based on an hourly rate of $26.50 which includes overhead.

[c]Observation costs are for initial performance test only.

TECHNICAL REPORT DATA

(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-450/3-85-013		

4. TITLE AND SUBTITLE	5. REPORT DATE
Opacity Provisions--Background Information for Promulgated Amendments	December 1985
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Office of Air Quality Planning and Standards U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS Director for Air Quality Planning and Standards Office of Air and Radiation U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711	13. TYPE OF REPORT AND PERIOD COVERED Final
	14. SPONSORING AGENCY CODE EPA/200/04

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The promulgated opacity provisions require owners or operators of affected facilities that are subject to opacity standards in 40 CFR Part 60 to record and report the opacity of emissions during the initial performance test. These provisions implement Section 114 of the Clean Air Act.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air pollution Pollution control Standards of performance Recordkeeping and reporting	Air Pollution Control	13 B

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
Unlimited	Unclassified	45
	20. SECURITY CLASS *(This page)*	22. PRICE
	Unclassified	

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